

REMARKS

In the Office Action, the indicated allowability of several of the claims was withdrawn. Claims 2, 4-8, 11-15, 20-31, 37, 39 and 40 were rejected, and claims 3, 9, 16-19, 32 and 41 were objected to as being dependent upon a rejected base claim, but indicated as allowable if rewritten in proper independent form. Applicants thank the Examiner for indicating the allowability of these claims.

By this Reply and Amendment, claims 4 and 20 have been amended, and claims 2-9, 11-32, 37 and 39-41 remain pending in the present application. All claim amendments are fully supported throughout the written description and figures of the specification.

Claims 2, 4-8, 11-16 and 20-32 were rejected under 35 USC 102(b) as anticipated by the Zintz et al. reference, US Patent No.: 4,185,652. Applicants disagree with and respectfully traverse this rejection; however certain amendments have been made to independent claims 4 and 20 to clarify the claim language and to facilitate allowance of the present application.

The Zintz et al. reference discloses a subaqueous sequence valve mechanism in which a control line may be pressurized up to a level that opens the lowest pressure sequence valve. If the pressure in the line is then dropped, the lowest pressure valve closes. If, on the other hand, the pressure in the control line is increased, the lowest pressure valve remains open while a second valve opens at a higher pressure. This sequence can be continued for additional valves. (See column 3, lines 36-44). In the embodiment illustrated in Figure 4 of the Zintz et al. reference, valve 161 remains open when pressure rises above 2000 psi, valve 162 opens at 2500 psi, and so forth until the highest pressure actuated valve 165 opens when the pressure exceeds 4000 psi. The reverse occurs when pressure is reduced. For example, the highest pressure actuated valve 165 is the first to close as the pressure in manifold 189 drops below 4000 psi, and this sequential process continues back to valve 161 which closes as the pressure drops below 2000 psi. The valves 161 through 165 operate in ascending and descending sequences as the pressure is varied from below 2000 psi to above 4000 psi. (See column 7, lines 39-52). The

reference does not disclose a system or methodology that enables the selection and individual control of well tool devices based on unique pressure ranges within a control line.

By way of specific example, the Zintz et al. reference fails to disclose or suggest numerous elements of the currently pending claims. For example, the reference fails to disclose or suggest a system with at least three hydraulically controlled well tool devices and a pair of hydraulic control lines in which "each of the at least three hydraulically controlled well tool devices is controllable independently of actuation of the other of the at least three hydraulically controlled well tool devices via application of unique pressure ranges through individual control lines" as recited in amended, independent claim 4. Similarly, the reference does not disclose or suggest using a pair of hydraulic lines coupled to at least three corresponding main valves to provide hydraulic input "*selectively* to the at least three downhole tools" and "*independently* controlling the at least three corresponding main valves by applying pressure at a plurality of unique pressure ranges via an individual hydraulic line" (*emphasis added*) as recited in independent claim 12. The reference also fails to disclose or suggest a plurality of downhole well tool components combined with a plurality of fluid control lines wherein "any of these downhole well tool components may be selected and individually controlled by application of a unique pressure level" as recited in amended, independent claim 20. The Zintz et al. reference further fails to disclose or suggest means for controlling "independent actuation of each downhole tool by pressurizing an individual fluid pilot line to one of a plurality of unique predetermined pressure ranges" as recited in independent claim 30.

In the previous Office Action, then dependent claims 7 and 8 were indicated as allowable if placed into independent form, and those claims are so amended into independent form. Applicants do not believe the Zintz et al. reference provides sufficient disclosure for removal of this indication of allowability. The Zintz et al. reference does not disclose or suggest various elements of these claims. For example, the reference fails to disclose or suggest a plurality of decoders in which each comprises an accumulator and an accumulator valve "to establish a reference pressure with respect to the main valve" as recited in independent claim 7. The reference also fails to disclose or suggest a plurality of decoders that each comprises a filling

valve disposed in "parallel to the main valve to equalize any atmospheric pressure trapped in the corresponding hydraulically controlled well tool" as recited in independent claim 8.

Claims 2, 5-6, 11, 13-16, 21-29 and 31-32 ultimately depend from one of the independent claims discussed above. Accordingly, these dependent claims are patentable over the cited reference for the reasons stated above with respect to the corresponding independent claims and for the unique subject matter recited in each of these dependent claims.

Claims 37, 39 and 40 were rejected under 35 USC 102(e) as anticipated by the Purkis et al. reference, US Patent No.: 6,567,013. Applicants respectfully traverse this rejection.

The Purkis et al. reference discloses a well control system utilizing digital hydraulics that rely on a group of hydraulic lines to provide hydraulic codes as opposed to utilizing individual lines to control a plurality of well tools as in the present application. In Purkis et al., well tools are controlled by corresponding control devices, e.g. control device 68, 74, 76, 78, 158, 160, 162, 164, 166, 168 and 170, which are selectively actuated by application of a hydraulic code or address via a plurality of hydraulic lines. According to the disclosure, "these addresses are similar to the type of notation used in digital electronics and sometimes referred to as binary code. In binary code, 1's and 0's are used to refer to the presence or absence of voltage, a state of charge, etc. on elements of an electronic device. In the present description of the hydraulic schematic, the 1's and 0's are used to indicate the presence or absence of a predetermined pressure level on a hydraulic line." (See column 5, lines 29-36). In distinguishing over the prior art use of pressure pulses in a single hydraulic line, the Purkis et al. reference states that its method of transmitting a code or address via a group of hydraulic lines is substantially different than applying a series of pressure pulses "on a hydraulic line." The reference further distinguishes the prior art by stating that in the prior art case, "pressure on a hydraulic line is intentionally increased and decreased repeatedly, and the code or address is not generated on multiple hydraulic lines, but is instead generated on a single hydraulic line." (See column 4, lines 54-62). In the embodiment illustrated and described with reference to Figure 4 of the Purkis et al. reference, four hydraulic lines A, B, C, D are used to provide four digit hydraulic codes corresponding to specific actuators. (See column 8, line 50, through column 9, line 20).

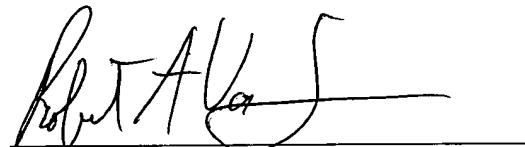
The Purkis et al. reference describes a system that uses control lines to establish a binary type control code. However, the reference does not disclose elements of independent claim 37.

By way of specific example, the Purkis et al. reference fails to disclose or suggest "a crossover disposed between two decoders of the plurality of decoders, wherein the crossover changes the first control line from a pilot line to a command line for at least one subsequent well tool component" as recited in independent claim 37.

Claims 39-41 depend from independent claim 37. Accordingly, these dependent claims are patentable over the cited reference for the reasons stated above with respect to independent claim 37 and for the unique subject matter recited in each of these dependent claims.

In view of the foregoing remarks, the pending claims are believed patentable over the cited references. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,



Robert A. Van Someren
Reg. No. 36,038

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PO Box 2107
Cypress, TX 77410-2107
Voice: (281) 373-4369